

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 897 978 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
17.10.2001 Bulletin 2001/42

(51) Int Cl.7: **C12N 15/10**, C07H 1/08,
C12P 19/34, C12Q 1/68,
B01J 20/06

(43) Date of publication A2:
24.02.1999 Bulletin 1999/08

(21) Application number: **98115595.5**

(22) Date of filing: **19.08.1998**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• **Woodard, Daniel L.**
Raleigh, North Carolina 27613 (US)
• **Beyer, Wayne F., Jr.**
Bahama, North Carolina 27503 (US)

(30) Priority: **22.08.1997 US 916531**

(74) Representative: **Rambelli, Paolo et al**
c/o JACOBACCI & PERANI S.p.A.
Corso Regio Parco, 27
10152 Torino (IT)

(71) Applicant: **Becton, Dickinson and Company**
Franklin Lakes, New Jersey 07417-1880 (US)

(54) **Zirconium oxide and related compounds for purification of nucleic acids**

(57) The present invention relates to unique compositions which bind nucleic acids. The compositions are

useful in processes for purifying nucleic acid from a sample.

EP 0 897 978 A3



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

EP 98 11 5595

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	WO 92 18514 A (MINNESOTA MINING & MFG) 29 October 1992 (1992-10-29) * page 7, line 29 - page 8, line 29 * * page 9, line 12 - page 10, line 11 * * claims 1-3; figures 3,4; examples 1,2 * ----	1-10	C12N15/10 C07H1/08 C12P19/34 C12Q1/68 B01J20/06
X	US 5 002 749 A (RECASENS JOSEPH ET AL) 26 March 1991 (1991-03-26) * the whole document * ----	1-4,8,9	
A	DE 43 09 248 A (UNGER KLAUS PROF DR ; LORENZ BERND (DE); MARME STEFAN (DE); MUELLER) 29 September 1994 (1994-09-29) * the whole document * ----	1-10	
T	EP 0 832 897 A (BECTON DICKINSON CO) 1 April 1998 (1998-04-01) * the whole document * -----	1-10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			C12N C07H C12P C12Q B01J
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search:</p> <p>see sheet C</p>			
Place of search		Date of completion of the search	Examiner
BERLIN		27 August 2001	ALCONADA RODRIG., A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03 02 (P04C67)



European Patent
Office

**INCOMPLETE SEARCH
SHEET C**

Application Number
EP 98 11 5595

Claim(s) searched incompletely:

10

Reason for the limitation of the search:

Present claim 10 relates to a process of purifying a nucleic acid on a surface defined by reference to a desirable characteristic or property, namely, that said surface is able to bind the nucleic acid at a pH below 7.0 and is able to release the nucleic acid at a pH above 7.0. The claims cover all processes having this characteristic or property, whereas the application provides support within the meaning of Article 84 EPC and/or disclosure within the meaning of Article 83 EPC for only a very limited number of such processes. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 84 EPC). An attempt is made to define the process by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the processes of purifying nucleic acids using a composition selected from the group of hydrated zirconium oxide, hydrated hafnium oxide, hydrated aluminium oxide, zirconium oxide, hafnium oxide and aluminium oxide (see claim 1 and example 4).

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 11 5595

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

27-08-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9218514 A	29-10-1992	AU 1978692 A	17-11-1992
US 5002749 A	26-03-1991	FR 2629072 A	29-09-1989
		AU 3140789 A	28-09-1989
		BR 8901272 A	07-11-1989
		CA 1325879 A	11-01-1994
		CN 1036548 A,B	25-10-1989
		DE 68901991 D	13-08-1992
		DE 68901991 T	24-12-1992
		EP 0334713 A	27-09-1989
		ES 2034663 T	01-04-1993
		JP 1278419 A	08-11-1989
		JP 1777856 C	28-07-1993
		JP 4065017 B	16-10-1992
		ZA 8902122 A	29-11-1989
DE 4309248 A	29-09-1994	NONE	
EP 0832897 A	01-04-1998	CA 2214495 A	25-03-1998
		JP 10147592 A	02-06-1998

EPC FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82